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5 January 1982

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NUCLEAR DEVELOPMENT AND PROLIFERATION

No. 127

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INDIA

PARLIAMENT DISCUSSES PROBLEMS AT NUCLEAR PLANTS

New Delhi PATRIOT in English 4 Dec 81 p 5

[Text] Prime Minister Indira Gandhi told the Rajya Sabha on Thursday that the Government was giving utmost attention to the Department of Atomic Energy.

She declared during question hour that a subject like atomic energy 'is very important to us' Like every other department this too had some problems which were looked into as and when they arose.

Dr Bhai Mahavir (BJP), who insisted that the Prime Minister should reply, alleged that Larsen and Toubro had supplied defective equipment' for the Rajasthan Atomic Power Plant (RAPP-II) and it was quite a serious matter that the same company had been allowed to supply equipment for the Madras Atomic Power Plant. He wanted the Prime Minister to explain why this was happening.

Mrs Gandhi said: 'In such matters we go by the opinion of the Experts Committee. I don't know of any bad equipment. Experts tell us what to accept and what not to accept.'

In reply to the original question by Dr Mahavir and Mr S W Dhabe (C-S), Minister of State for Science and Technology C P N Singh (who read out Mrs Gandhi's written reply) said: 'Unit-I of the Rajasthan Atomic Power Plant is undergoing a maintenance shut down during which the leaks will be attended to. The second unit of the Rajasthan Atomic Power Station is in operation.' He denied that the office of the Chief Engineer of the RAPP and that of the Narora Plant was held by the same incumbent and hence it was not true that this was leading following inadequate maintenance of the RAPP.

He also said that the total installed atomic power capacity in the country was 860 megawatts of electricity and the power level generated was approximately 600 megawatts of electricity.

Both Dr Bhai Mahavir and Mr R N Mirdha (C-I) charged that radioactive heavy water had flown into Rana Pratap Sagar on account of leakage in RAPP-I. They expressed concern over the hazards this would entail.

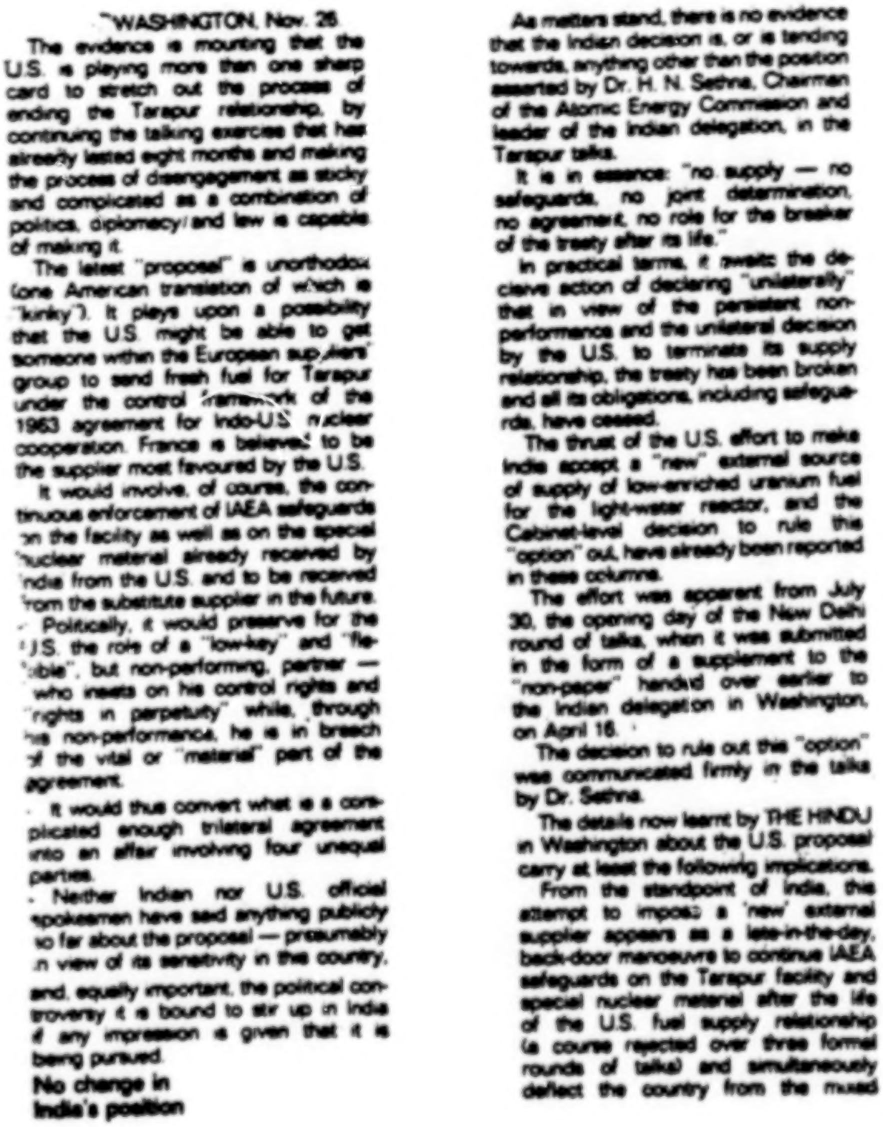
CSO: 5100/7034

IMPLICATIONS OF U.S. PROPOSAL ON TARAPUR NOTED

Madras THE HINDU in English 27 Nov 81 p 9

[Article by N. Ram]

[Text]



WASHINGTON, Nov. 26.

The evidence is mounting that the U.S. is playing more than one sharp card to stretch out the process of ending the Tarapur relationship, by continuing the talking exercise that has already lasted eight months and making the process of disengagement as sticky and complicated as a combination of politics, diplomacy and law is capable of making it.

The latest "proposal" is unorthodox (one American translation of which is "kinky"). It plays upon a possibility that the U.S. might be able to get someone within the European suppliers' group to send fresh fuel for Tarapur under the control framework of the 1963 agreement for Indo-U.S. nuclear cooperation. France is believed to be the supplier most favoured by the U.S.

It would involve, of course, the continuous enforcement of IAEA safeguards on the facility as well as on the special nuclear material already received by India from the U.S. and to be received from the substitute supplier in the future.

Politically, it would preserve for the U.S. the role of a "low-key" and "flexible", but non-performing, partner — who insists on his control rights and "rights in perpetuity" while, through his non-performance, he is in breach of the vital or "material" part of the agreement.

It would thus convert what is a complicated enough trilateral agreement into an affair involving four unequal parties.

Neither Indian nor U.S. official spokesmen have said anything publicly so far about the proposal — presumably in view of its sensitivity in this country, and, equally important, the political controversy it is bound to stir up in India if any impression is given that it is being pursued.

No change in India's position

As matters stand, there is no evidence that the Indian decision is, or is tending towards, anything other than the position asserted by Dr. H. N. Sethna, Chairman of the Atomic Energy Commission and leader of the Indian delegation, in the Tarapur talks.

It is in essence: "no supply — no safeguards, no joint determination, no agreement, no role for the breaker of the treaty after its life."

In practical terms, it awaits the decisive action of declaring "unilaterally" that in view of the persistent non-performance and the unilateral decision by the U.S. to terminate its supply relationship, the treaty has been broken and all its obligations, including safeguards, have ceased.

The thrust of the U.S. effort to make India accept a "new" external source of supply of low-enriched uranium fuel for the light-water reactor, and the Cabinet-level decision to rule this "option" out, have already been reported in these columns.

The effort was apparent from July 30, the opening day of the New Delhi round of talks, when it was submitted in the form of a supplement to the "non-paper" handed over earlier to the Indian delegation in Washington, on April 16.

The decision to rule out this "option" was communicated firmly in the talks by Dr. Sethna.

The details now learnt by THE HINDU in Washington about the U.S. proposal carry at least the following implications.

From the standpoint of India, this attempt to impose a 'new' external supplier appears as a late-in-the-day, back-door manoeuvre to continue IAEA safeguards on the Tarapur facility and special nuclear material after the life of the U.S. fuel supply relationship (a course rejected over three formal rounds of talks) and simultaneously deflect the country from the mixed oxide fuel ("mox") route. If successful, it would render the substantial investment in the scientific and technical process, over time, a redundancy, if not entirely a waste.

More important perhaps, precisely when the strengths of a movement towards self-reliance or independence in the nuclear field have become clear and 'mox' appears to have become a commercially viable proposition at least for the intermediate term (before better or more appropriate methods are in place for running facilities like Tarapur), it would expose India once again to the vagaries and political uncertainties of dependence on an external supplier.

If, for any technical or economic reason, recourse to an external supplier becomes necessary at any point in India's nuclear development, the business can be negotiated on its own merits and according to the circumstances, rather than being brokered by Mr. Malone and Co. in this heavy-handed way. The international market for natural as well as enriched uranium is, according to experts, no longer stacked as it used to be against the buyer.

Less reliable: If the 1963 Tarapur Agreement seems (as it almost certainly is) a less stringent, more even-handed nuclear cooperation agreement than the ones imposed on other countries, including Japan, in a later period: this recognition must be qualified with reference to the other part of the experience.

It is that the United States, particularly after the enactment of its Nuclear Non-Proliferation Act (NNPA) of 1978, has proved overweening and discriminatory in the pressures it has mounted on behalf of "fullscope safeguards." It is clearly today a less reliable civilian nuclear supplier than any other major power.

The point is constantly made in the U.S. Congress that the Soviet Union insists on exemplary, tough non-proliferation standards in all its bilateral nuclear arrangements. But it bears emphasis that a recipient such as India can deal, and has dealt, more comfortably with that relationship since no uncertainty is involved.

Accepting the latest U.S. proposal would also be the equivalent of undermining article VI of the 1963 Tarapur Agreement, which India regards as the "cornerstone" both in fact and in law. The Article strongly ties safeguards to the supply of U.S. low-enriched uranium fuel and is the treaty basis for maintaining that India's acceptance of Tarapur safeguards is conditioned solely, in a time-bound way (as opposed to "rights in perpetuity"), on regular and timely supply of fuel from the United States.

And far from freeing India's hands from the present uncertainties and the bilateral (possibly trilateral) dispute over a national nuclear facility of prime economic and technical importance, it would place Tarapur in the vulnerable position of a candidate at the receiving end of fresh legal complications, from a "third country" on top of the International Atomic Energy Agency (IAEA).

The style of the U.S. proposal reveals almost as much as its substance. It is significant that the idea was raised privately by Mr. James L. Malone, U.S. Assistant Secretary of State in charge of nuclear "non-proliferation", with Mr. Eric Gonsalves, Secretary in the External Affairs Ministry, on the eve of the official third round of talks in Washington on November 12.

No formal proposal: Unlike even the "non-paper" and its supplement handed over to the Indian delegation in the April round in Washington and the July round in New Delhi respectively, it was not brought up in the formal session itself.

It might be that the failure to bring the proposal into the official talks has something to do with its sensitivity in this country.

It will not do, for instance, to have the non-proliferation warrior from Ohio, Senator John Glenn, or the veteran from California, Senator Alan Cranston, or the media, to campaign and polemicise against this proposal, through premature publicity.

But it is quite instructive that so far the United States has chosen not to raise it directly with the head of the atomic energy establishment, since the trends of thinking on Tarapur within the scientific and technical community in India are unmistakable by now.

(Actually, Mr. Malone has promised to "keep in touch" on Tarapur, and the visit in mid-December by his boss, Mr. Alexander Haig, might or might not present a high-level political opportunity to cut India's losses, or even gain some new insights.)

CSO: 5100/7031

INDIA

DETAILS OF TARAPUR PACT HIDDEN FROM U.S. PUBLIC

Madras THE HINDU in English 28 Nov 81 p 5

[Article by N. Ram]

[Text] WASHINGTON, Nov 27

One feature of the Indo-U.S. negotiations on Tarapur appears to be that the nature, and certainly the details, of the negotiating positions are being kept away from the U.S. Congress and the media — as strenuously as the External Affairs Ministry (and particularly Mr. Gonsalves) attempted initially to keep them away from the knowledge of the Indian press and Parliament.

It would certainly be worthwhile to record the sentiments and the language of Senator John Glenn when he learns, for example, that Mr. Malone (the nuclear broker whose appointment as Assistant Secretary of State with the charge of "non-proliferation" he tried very hard to block on grounds of "conflict of interests") breezily announced to the Indian negotiators the Reagan Administration's decision "not to press approval rights for reprocessing of the spent fuel".

Mr. Glenn would also be interested in the substance as well as the style of the latest tentative "proposal" conveyed privately to Mr. Gonsalves — involving, among other things, the short-circuiting of the Nuclear Non-Proliferation Act, of which the Senator is the chief author, and dodging consultations with the Senate Foreign Relations Committee which insists on an oversight of such matters.

The basic purpose of the 1978 Act is supposed to be to prevent the transfer ("export") by the U.S. of nuclear equipment, special material, or sensitive technology to those countries which refuse to accept "fullscope safeguards" as well as a U.S. "veto" on reprocessing.

Symington amendment

Only last week, Mr. John Glenn expressed his longstanding concerns over U.S. nuclear export policy, in a particularly forceful statement during some Senate hearings. He rebuked the Reagan Administration for attempting to "do away completely" (in the case of Pakistan) with the Symington amendment, and noted: "The Administration consistently opposed all of my efforts to temper their original proposal in this regard and only by strong congressional opposition have we been able to salvage this vital provision of law".

He singled out a recent State Department memorandum (dated October 2, 1981) sent out by Mr. Malone which reviewed changes in the nuclear non-proliferation law and gave "a new lease" to the hopes of resisters that "if they hold out a little longer, they will be able to renew trade with the U.S. without submitting to IAEA safeguards across-the-board".

Turning to the most recent U.S. arrangements for reprocessing, he regretted that "we are now approving pell-mell every transfer of spent fuel from Japan, Sweden, Spain and Switzerland for reprocessing in Great Britain and France, and, as far as the Japanese Tokai (Mura) plant is concerned, we have basically given them carte blanche".

With unconscious irony, the Senator, who has perhaps created more problems for Tarapur fuel supply than any other individual American, but has at least been consistent on the issue, asked the rhetorical question: "How can we discourage the export of this technology to sensitive regions, or persuade countries like India to forego reprocessing when, with every ounce of strength, it seems, we are telling the world that reprocessing makes sense and is a legitimate part of civilian nuclear programme?"

Contrary signal

And, interestingly and again without realising how close he was to the latest twist in the Tarapur negotiations, Mr. Glenn assailed the U.S. for undercutting years of "non-proliferation" efforts with the Brazilian regime by making it "easier for it to obtain fuel elsewhere, from other suppliers".

Encouraging the seeking of nuclear fuel from suppliers, such as "Eurenco" (the British-Dutch-West German consortium) and "Eurodif" (the French-led consortium), whose "export controls are less strict than ours," sent out a signal "directly contrary to the efforts we have been making over the past several years to get them to adopt the same strict export controls that we have".

Senator Alan Cranston, another "non-proliferation" warrior, has added to this list of grievances the cases of the South African apartheid regime's "end-run around U.S. export controls", and of the imaginative efforts of Mexico, which is, reportedly, while soliciting bids for the construction of two power reactors, "openly trying to set up competition among the nuclear suppliers to see who will be willing to supply sensitive nuclear technology — enrichment and reprocessing facilities — as part of the package to sweeten the offer".

The Indian objections to the crude and "evolving" game-plan of the Reagan Administration on Tarapur make a fascinating mesh with the more-or-less earnest complaints being registered in the U.S. Congress that "maybe the Administration feels non-proliferation is none of its business".

It could be added that if the U.S. were businesslike about "non-proliferation" in relation to Tarapur, the obvious course would have been to find a way to continue the not-very-demanding fuel supply until 1993 — under terms which were recognised as bearing no relation to a "nuclear weapons" programme" and which would have kept the IAEA safeguards in place.

The political need to "teach a lesson" where no demonstrated U.S. interest is served expresses one of the less obvious contradictions in U.S. international policy.

CSO: 5100/7032

EDITORIAL URGES SCRAPPING OF TARAPUR PACT

New Delhi PATRIOT in English 19 Nov 81 p 2

[Text]

ONE had hoped for a quiet burial of this contentious issue. However, it appears that that is not to be. The US wants to resile from its contractual commitment to supply enriched uranium for thirty years since the agreement was signed in 1963 but it wants India to continue to be bound by its provisions. It has been dragging its feet over the supply of enriched uranium from 1974 till the Carter Administration practically put an end to it in 1980, leaving Tarapur to be run at reduced capacity only till early 1982. Successive rounds of talks between the officials of the two countries have revealed several trends detrimental to India. The crucial one of course is the circumscription of this country's right to make its own decisions and the insistence of a renegade government to dictate terms to the victim of a breach of an international contract. The consequences of the present manoeuvring will be far-reaching not only on India's own pursuit of an independent nuclear energy programme but also on the relationship between supplier nations and user nations, which is intended to be reduced to one of serfdom. Equally reprehensible are the hints by the US that it will use its influence to create problems for India within the International Atomic Energy Agency, the specialised UN body which supervises nuclear relations between countries and is a pool of expertise on the subject. It comes into the picture as the "third party" which supervises safeguards arrangements meant to prevent the diversion of nuclear material supplied under bilateral arrangements to military uses. What the US is trying to do is to transfer a bilateral obligation to the shoulders of the world body—a body which has no means of fulfilling the basic requirement of the contract, that is, supply of fuel, around which the whole arrangement is built.

How is this sought to be done? The US has told India that it must not use the mixed oxide fuel (MOX) that it has fabricated through its own expertise to replace the slightly-enriched uranium supplied by the US for Tarapur. The US is making a great show of being accommodative by saying that it will not stand in India's way if it buys enriched uranium from France or any other country. (One provision in the contract is that India can use only US-supplied fuel in the Tarapur reactor). It is a flimsy attempt to keep the IAEA safeguards intact, while repudiating the responsibility of supplying the fuel. It is also an attempt to obfuscate the basic issue that a breach has already occurred in the contract by the failure of the US to supply the fuel. By maintaining that IAEA safeguards on Tarapur must continue the US is only trying to bind India unilaterally. Everything devolves on fuel supplies. If there are no fuel supplies there can be no safeguards.

India cannot fall for the bait of illusory accommodation especially when it claims that it can run Tarapur on indigenously fabricated mixed oxide fuel. Its own magnanimous gesture of allowing the Rajasthan Atomic Power Plants to continue to be under IAEA safeguards even after Canada unilaterally abrogated its part of the contract cannot be made an obligatory model. That was meant to reassure the world that India was not about to make nuclear weapons after the 1974 peaceful nuclear experiment at Pokhran. One does not have to continue to provide indefinitely earnest of good faith when others are not willing to adhere to their own specific obligations. If India now accedes to US pressures it would mean undermining the movement of developing countries to ensure uninterrupted supplies of nuclear materials under IAEA safeguards; it would mean allowing the use of the atom as well as the IAEA as an instrument of neo-colonialism. The US has threatened that if India goes ahead with its mixed oxide fuel programme, Indo-US bilateral relations will become muddled. Well, it is difficult to remember a time when our relations were not muddied by US attempts to act the big brother or the local cop. We have been in suspense too long now. The best thing is to run Tarapur according to our own convenience -- with indigenous fuel.

CSO: 5100/7027

MINISTER: INDIA NOT SCRAPPING TARAPUR TREATY

Bombay THE TIMES OF INDIA in English 3 Dec 81 p 6

[Excerpt]

NEW DELHI, December 2 (PTI & UNI).

THE government asserted in the Lok Sabha today that India was not scrapping the treaty with the United States on the supply of enriched uranium for the Tarapur plant.

Mr. C. P. N. Singh, minister of state for science and technology, said in the event of the U.S. scrapping the treaty, India could seek uranium from other countries.

Replying to Mr. K. P. Singh Deo, the minister clarified that till the teraty was in force "we cannot seek enriched uranium from any other country".

While declining to say anything about the treaty, Mr. Singh assured the house that India had alternative method to ensure the working of the Tarapur plant.

Replying to the charge of Mr. Subramaniam Swamy, who said India's approach to the U.S. was weak-kneed, both the Prime Minister, Mrs. Indira Gandhi, and Mr. Singh asserted: "No foreign element or government has a say in what we are going to do in our country. It is for us to take a decision".

Mr. Singh said he would like to reaffirm that the government of India had never succumbed to pressure from any country.

"But we do not break a treaty we have signed unless there is something which is detrimental to our country".

The Prime Minister and Mr. Singh reaffirmed the government's firm stand after Mr. Swamy wanted to know if it was a fact that the U.S. was exercising pressure on India to use the spent fuel. He wanted an assurance that even if the treaty was scrapped, the government would never agree to U.S. supervision of the spent fuel.

Mr. Singh assured the house: "No country will have a say in shaping our policies".

Mr. Chandrajit Yadav felt that the U.S. was breaking the treaty and asked if India would fix a time limit? The U.S. should not be able to prevent India from obtaining fuel, he said.

The Prime Minister remarked they could not stop India now either.

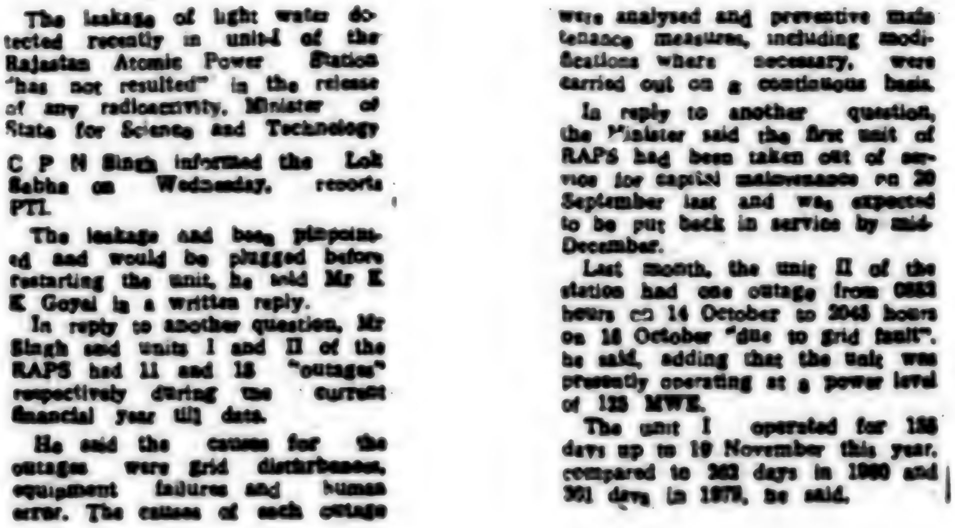
Mrs. Gandhi told Mr. Singh Deo that her visit to France was not to explore the possibility of getting uranium from France for the Tarapur nuclear plant.

CSO: 5100/7033

MINISTER: NO RADIOACTIVITY FROM RAJASTHAN LEAK

New Delhi PATRIOT in English 26 Nov 81 p 6

[Text]



The leakage of light water detected recently in unit-I of the Rajasthan Atomic Power Station "has not resulted" in the release of any radioactivity, Minister of State for Science and Technology C P N Singh informed the Lok Sabha on Wednesday, reports PTI.

The leakage had been pinpointed and would be plugged before restarting the unit, he told Mr K K Goyal in a written reply.

In reply to another question, Mr Singh said units I and II of the RAPS had 11 and 18 "outages" respectively during the current financial year till date.

He said the causes for the outages were grid disturbances, equipment failures and human error. The causes of each outage were analysed and preventive maintenance measures, including modifications where necessary, were carried out on a continuous basis.

In reply to another question, the Minister said the first unit of RAPS had been taken out of service for capital maintenance on 20 September last and was expected to be put back in service by mid-December.

Last month, the unit II of the station had one outage from 0853 hours on 14 October to 2045 hours on 18 October "due to grid fault", he said, adding that the unit was presently operating at a power level of 125 MWE.

The unit I operated for 158 days up to 19 November this year, compared to 262 days in 1980 and 301 days in 1979, he said.

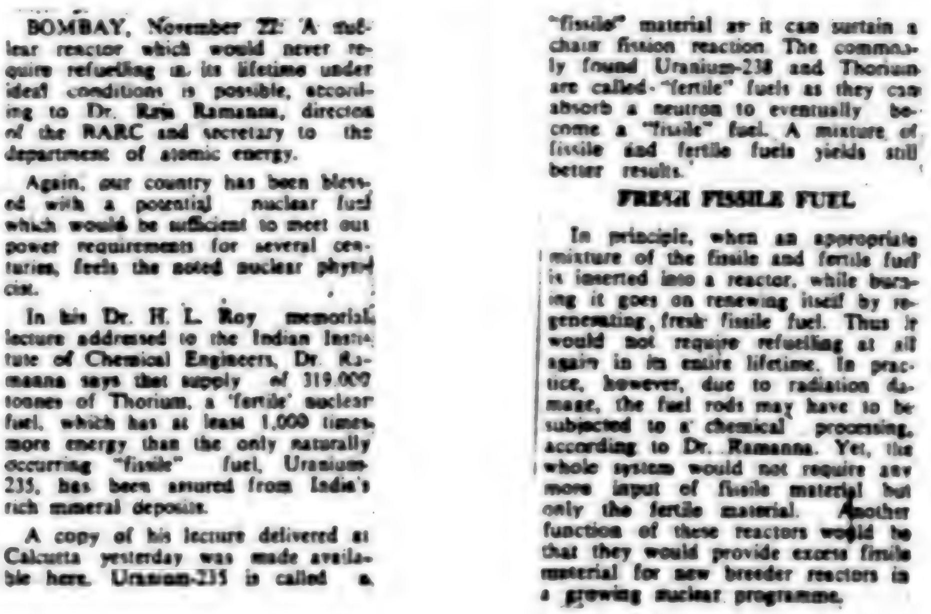
CSO: 5100/7029

INDIA

SCIENTIST DISCUSSES THORIOU AS NUCLEAR FUEL BASE

Bombay THE TIMES OF INDIA in English 23 Nov 81 p 3

[Text]



BOMBAY, November 22: A nuclear reactor which would never require refuelling in its lifetime under ideal conditions is possible, according to Dr. Raja Ramanna, director of the BARC and secretary to the department of atomic energy.

Again, our country has been blessed with a potential nuclear fuel which would be sufficient to meet our power requirements for several centuries, feels the noted nuclear physicist.

In his Dr. H. L. Roy memorial lecture addressed to the Indian Institute of Chemical Engineers, Dr. Ramanna says that supply of 319,000 tonnes of Thorium, a 'fertile' nuclear fuel, which has at least 1,000 times more energy than the only naturally occurring "fissile" fuel, Uranium-235, has been assured from India's rich mineral deposits.

A copy of his lecture delivered at Calcutta yesterday was made available here. Uranium-235 is called a "fissile" material as it can sustain a chain fission reaction. The commonly found Uranium-238 and Thorium are called "fertile" fuels as they can absorb a neutron to eventually become a "fissile" fuel. A mixture of fissile and fertile fuels yields still better results.

FRESH FISSILE FUEL

In principle, when an appropriate mixture of the fissile and fertile fuel is inserted into a reactor, while burning it goes on renewing itself by regenerating fresh fissile fuel. Thus it would not require refuelling at all again in its entire lifetime. In practice, however, due to radiation damage, the fuel rods may have to be subjected to a chemical processing, according to Dr. Ramanna. Yet, the whole system would not require any more input of fissile material but only the fertile material. Another function of these reactors would be that they would provide excess fissile material for new breeder reactors in a growing nuclear programme.

CSO: 5100/7028

INDIA

BRIEFS

MADRAS A-POWER PROJECT--Prime Minister, Mrs Indira Gandhi, was urged in the Lok Sabha on Wednesday to order a thorough probe why the Madras atomic power project was still in doldrums 16 years after sanction, reports PTI. Mr Era Anbarsu, Congress-l member, at grievances time drew the attention of the House to 'wanton' delaying tactics on the part of officers and employees as well as 'irregularities labour unrest, administrative atrocities and communal clashes' at the project site. [New Delhi PATRIOT in English 26 Nov 81 p 6]

CSO: 5100/7030

PAKISTAN

BRIEFS

NUCLEAR PROGRAM--New Delhi, 5 Dec (AFP)--Indian Army Chief General K.V. Krishna Rao today said there was "reasonable evidence" of Pakistan building nuclear weapons and that "if they do so we will have to take necessary measures." In an informal chat with reporters at Pune, Western India, Gen Rao added: "We always take into consideration what our adversaries are doing." Asked whether he considered Pakistan as an adversary, Gen Rao, according to reports, retorted: "If you are an Indian, tell me, who are your adversaries?" At the same time he firmly refuted the reported statement of former U.S. ambassador to India Daniel Moynihan that the American supply of sophisticated weapons to Pakistan might invite a preemptive strike by India. "They float all kinds of things in the press," he remarked. [Text] [BK051639 Hong Kong AFP in English 1429 GMT 5 Dec 81]

URANIUM DEPOSITS--It is being speculated that vast reserves of uranium exist in the granite rocks of Pakistan's Mekran District that are mostly sedimentary and metamorphic and according to experts the kind known to contain uranium. A radiological survey of the area is expected to be undertaken. [Karachi NAWA-E-WAQT in Urdu 8 Dec 81 p 1 GF]

CSO: 5100/2062

LONG-RANGE NUCLEAR ENERGY DEVELOPMENT OUTLINED

Gdansk GLOS WYBRZEZA in Polish 4 Nov 81 p 3

[Interview with engineer Jan Kubit, chairman of the Sejm Subcommission for the Power Industry and of the Commission for Mining, the Power Industry and the Chemical Industry, by Miroslaw Dymczak: "A Nuclear Power Plant in Kadyny?"]

> [Text] When I arranged to speak with engineer Jan Kubit, chairman of the Sejm Subcommission for the Power Industry and of the Commission for Mining, the Power Industry and the Chemical Industry, I did not expect that during our conversation I would hear news that would electrify the residents of Elblag. That news is about the possibility of building a nuclear power plant near Kadyny on the Wisla Bay.

[Question] Mr Deputy, for years we have been talking about the necessity of creating and developing the nuclear power industry in our country. Legend has already entwined itself around the plan to build the first nuclear powerplant at Zarnowiec. Recently the subject has come up again, but won't things end in words this time as well?

[Answer] I am hopeful and believe that now the plans will start to materialize fast. Our fuel and energy situation demands it.

It is apparent to us all that the development of material production is the key to extricating Poland from her current, serious economic crisis. The size and shape of that proverbial key are determined nonetheless by energy and fuel resources and by the scale of imports of indispensable raw materials.

As you know, our fuel and energy balance is based on the import of crude oil and gas and on the mining of hard and brown coal. The level of imports of crude oil had remained constant for a long time but declined recently because of our lack of hard currency. There is likewise no chance of increasing deliveries of natural gas from the Soviet Union. That leaves coal.

The mining of brown coal has been falling systematically over the past few years. In 1979, it came to 41 million tons, and in the current year it will come to about 37 million tons. With respect to hard coal, surrealistic plans called for mining 240 million tons in 1990, while last year the level dropped to 193 million tons, a decrease of 10 million tons. By comparison to 1979, this year may see the 162 million tons level. If we once again are to surpass the 200-million-ton level, judging from the development of the mining situation, we will do it only in the distant future.

[Question]...in spite of the fact that the power industry and the heating system, however slowly, will increase their generating capacity....

[Answer] ...and cause a further divergence between coal needs and coal sales potential. In 1979, the power industry used 60 million tons of hard coal to generate 23,000 megawatts, and this year it is to receive 55 million tons of coal. When the construction of the OPOLE powerplant (2,100 MW) and the POLANIEC powerplant (adding another 800 MW) is completed, the needs will have increased by approximately 10 million tons annually. The development of the heating system in large urban centers will increase needs by approximately 1 million tons annually. Thus, the shortage of hard coal will assume unusually dramatic proportions.

[Question] The use of unconventional fuels, then, provides a chance for mitigating the situation.

[Answer] More specifically, this concerns the development of nuclear power. This question already has a history. In 1974, an international agreement was concluded with the Soviet Union concerning the construction of two nuclear powerplants, in Zarnowiec and in the vicinity of Ciechocinek. These were to be powered by fuel supplied by the USSR. They were to be completed in 1990, to achieve a combined targeted capacity of 6,000 MW. The existence of these plants would enable us to conserve 18 [13?--illegible] million tons of hard coal a year.

The further development of the nuclear power industry projected for the year 2000 was also discussed in the agreement. These plans, like many others, failed in one of the basic strategical economic blunders of the 1970's. What makes this an even greater mistake is the fact that in the area of equipment production for these powerplants, we had and could attain a trade balance in which exports exceeded indispensable imports.

What then did we have and do we still have to send to the CEMA countries? In the first place, we have the nuclear electronics systems manufactured in the POLON plants, which include a very great share of Polish technological know-how.

There is also the production of Diesel units: motors in the Swietochlowicz ZGODA plant and generators in the Wroclaw DOLMEL plant. Every unit of a 440-MW nuclear powerplant must be equipped with 3 such assemblies with a per-unit capacity of 2.8 MW, whereas each 1,000 MW unit must be equipped with 3 assemblies with a per-unit capacity of 6.2 MW. At first it was envisaged that, between 1981 and 1985, our country would supply its CEMA partners with 99 diesel units but now there is only the possibility of supplying 42 units. However, we must decide this matter quickly, because Yugoslavia is making a commitment to meet the total need for this equipment.

Other equipment greatly sought by investors in nuclear powerplants are heat exchangers (the Sosnowiec FAKOP plant), pressure stabilizers (the Raciborz

RAFAKO plant) and, above all, special stainless steel fittings manufactured in the Kielce CHEMAR plant. The latter is, without exaggeration, a gold mine: the Soviet Union alone imports approximately 50,000 tons annually of stainless steel from the West; over 3,000 tons are needed for each unit.

[Question] You stated that we could have supplied and could continue to supply CEMA countries with this equipment. Does this mean that all is not lost?

[Answer] Much, but not all, is lost. During the 1970's, when our economy was opened up broadly to the West, causing us to be ensnared in a tightly woven credit trap, much was done in the direction of our withdrawing from cooperation within the CEMA framework in specializing in the construction of equipment for the nuclear power industry as well. At the beginning of September in Moscow, and at the end of the same month in Sofia, meetings were conducted in which all those interested in the subject of CEMA nations participated. During these meetings we were able to "turn around" many issues. We were reminded that during the years 1981-1985 we were to implement deliveries for a combined value of 800 million rubles; during the next five-year plan, deliveries valued at 1.2 billion rubles were to be implemented. Nonetheless, we were given a second chance, which we must in no event lose because of unreliable implementation. I am directing this remark in the first place toward factories capable of manufacturing the particular equipment. In light of the limitation of the conventional power industry program, they now have a wide-open field, which they should get control of as soon as possible. If we continue to show our backs to our CEMA partners, we will only be working toward our own detriment.

[Question] In speaking of the export potential of our industry, you did not mention the turbines from Zamech.

[Answer] The Elblag plant's offer to supply one turbine set with a per-unit capacity of 465 MW, instead of supplying two sets for 220 MW each to work in conjunction with the WWER-440 reactor, was considered an interesting idea. Unfortunately, when the subject was current, the government did not attempt to get the specialization for this equipment as well within the CEMA framework.

At this time, Zamech has an opportunity to specialize in supplying 1,000-MW turbine sets. However, these must be monounits with 3,000 revolutions per minute. The Soviet Union produces sets with 1,500 revolutions per minute, which increases the overall dimensions of the turbine sets and the engine room and consequently increases the cost of the investment. The implementation of this design would require the construction of DOLMEL of a centrifuge for testing the overspeeding of generator rotors for a capacity of over 1,000 MW and with 3,000 revolutions per minute.

[Question] Mr Deputy, before I ask you about the developmental perspectives of the nuclear power industry in Poland, I would like to know about the state of the CEMA nations in this area with regard to what they have and what they are planning.

[Answer] The USSR has a capacity of 15,000 MW, which will increase during this five-year plan by approximately 24,000 MW. This is all the more telling in that the Soviet Union has a wealth of coal, crude oil, natural gas and water power.

In Bulgaria in Kozloduy, three units at 440 MW each are in operation, while a fourth unit will be put into operation within the next few months. Two units at 1,000 MW each are under construction. In the GDR, four 440 MW units are in operation in the NORD atomic powerplant, and four more are installed. The Hungarians are building the PAKS powerplant, to be equipped with 440 MW units. The Czechs are implementing an investment outfitted with three such units.

[Question] What can we afford to do?

[Answer] Two variants for the development of the nuclear power industry in Poland to the year 2000 have been worked out. The first, the more conservative, envisages the implementation of the ZRNOWIEC powerplant with four 440 MW units, KUJAWY in the vicinity of Ciechocinek with four units for 1,000 MW each and the WARTA powerplant with the same capacity at KUJAWY. The second variant, dictated by the real needs of the country, projects, in addition to the above, the construction of plants like the KUJAWY and the WARTA plant in Malkinia or eventually in the environs of Kadyn on Wisla Bay. The implementation of such an investment on the bay would be a good one, enabling the rational development of this sea area. The discharge of warm water would enable the expansion of the husbandry of many varieties of fish previously not present in the waters. A nuclear powerplant does not cause pollution of the atmosphere with chimney gases, nor does it require grounds for the dumping of ashes, since no waste gases or ashes are made.

[Question] The proverb has it that it is a long road from the idea to the realization.

[Answer] A resolution of the Council of Ministers concerning the immediate implementation of the ZARNOWIEC plant has already been prepared. This would be set in motion in 1982, with the first unit to be put into operation in 1983 and another unit every year thereafter. Construction work on the KUJAWY plant would begin in 1983, with power to be available in 1991. The implementation of this investment is not contingent upon the construction of dam facilities within the vicinity of Ciechocinek within the framework of the WISLA program.

[Question] There is still the question of a cost comparison of the construction of a nuclear powerplant and a conventional powerplant.

[Answer] It is difficult to compare these costs prior to the implementation of producer prices. But if the transport of 1 ton of cargo for a distance of 1 kilometer now costs a dozen or so groszy, and a ton of coal costs 500 zloty, then these elements are at ceiling prices. When these prices are implemented, nuclear powerplants will withstand the competition during the investment phase. During their utilization, on the other hand, the production of 1 kilowatt-hour will certainly be cheaper. The profit in environmental protection will be still greater.

8536
CSO: 5100/3005

ARGENTINA

'LA PRENSA' VOICES CONCERN OVER NUCLEAR REACTORS IN CUBA

Buenos Aires LA PRENSA in Spanish 15 Nov 81 Sec 2 p 1

[Editorial]

[Text] According to an IAEA report just presented to the UN General Assembly, within 5 years Cuba will have two nuclear reactors in operation, which will be supplied to them by the Soviet Union.

The "peaceful goals" invoked for the utilization of nuclear energy in the Caribbean country do not diminish the strong impression provoked by the announcement of the named international organization, which in real terms means that the neighboring countries may be exposed to a firepower of unforeseeable capacity, without excluding from this risk the United States, that is, the "enemy number one" of the Castro dictatorship, which receives material and military support from the Soviet Union.

The assurances given by the IAEA in regard to control of fissionable material for the purpose of preventing the use of plutonium produced by the reactors in arms production also do nothing to dispel doubts and fears. However prudent the "safeguard agreements" permitting control activities and signed by Cuba may be, no one can guarantee that they will be fulfilled at all times under all circumstances. Experience has shown the relative value of commitments assumed by states in the area of disarmament when the good-will to faithfully observe them is not present for all parties.

The determination of the Cuban dictator to participate in the "nuclear era" is not recent. It was first manifested in the 1960's when Nikita Khrushchev exercised his discretionary powers as head of the Soviet Government. The firm reaction of the U.S. president, John F. Kennedy, upset that plan, despite the fact that then, too, there was talk of applying nuclear energy to useful purposes. In those years nobody would have imagined that communist Cuba would join the nuclear countries precisely during the most critical period in international relations. It is for good reason that the Soviet Government, contrary to other states, refused to sign the Treaty of Tlatelolco, concluded in Mexico 14 January 1967, which prohibits the testing, use, manufacture, production, acquisition, receipt, stockpiling, installation, deployment and all manner of possession of nuclear arms in Central and South America.

Judging from the IAEA report, the two Cuban reactors are under construction. It remains to be seen whether they will be used exclusively for "producing energy" and for "research" purposes, as is stipulated in the safeguard agreements. It also remains to be seen what attitude the Western nations will adopt in the heart of the United Nations in the face of the risk that the formidable military arsenal at the disposal of the Soviet Union and its allies may be increased by a new source of destructive power.

9746
CSO: 5100/2040

ARGENTINA

BRIEFS

NUCLEAR FUELS CORPORATION--Buenos Aires, 11 Dec (TELAM)--The joint enterprise Argentine Nuclear Fuels Corporation [Combustibles Nucleares Argentinos SA-CONUAR] was incorporated here today. This corporation will operate the Ezeiza Nuclear Fuels Industrial Plant--built by the National Atomic Energy Commission (CNEA)--to (?manufacture) combustible elements which will be supplied to the nuclear plants of Atucha I, Embalse and Atucha II. The information--released today by the CNEA--states that the new enterprise will start producing combustible elements for the Atucha I nuclear plant some time next year. CONUAR SA's capital stock will be paid in as follows: 2/3 by the corporation PECOM Nuclear SA--member of the group Perez Companc --and the remaining 1/3 by the CNEA. The ceremony at which the joint enterprise was constituted was held at 1630 in the office of the nation's notary general, and the persons who signed the corresponding minutes were Rear Adm Carlos Castro Madero, chairman of the CNEA, and Raul Gustavo Gonzalez, director of PECOM Nuclear SA, followed by the directors and trustees of the new corporation. [Text] [PY172127 Buenos Aires TELAM in Spanish 2322 GMT 11 Dec 81]

CSO: 5100/2060

BRIEFS

NUCLEBRAS PRODUCES URANIUM CONCENTRATE--Brazil today produced uranium concentrate for the first time at the Pocos de Caldas plant in Minas Gerais State. On an experimental basis, Nuclebras obtained 200 kilos of "yellow cake"--uranium concentrate--using the mineral extracted from the [name indistinct] mine in Pocos de Caldas. The Pocos de Caldas industrial complex will be dedicated during the first 3 months of 1982. Pre-operational tests, which will last approximately 3 months, are being condcuted now. Ninety percent of the equipment installed at the Pocos de Caldas complex was supplied by Brazilian industry and the remaining 10 percent consists of very special equipment and instruments which are still not manufactured in the country. [Text] [PY120023 Brasilia Domestic Service in Portuguese 2200 GMT 11 Dec 81]

CSO: 5100/2054

PERU

BRIEFS

URANIUM PROSPECTING TENDER--Gen Juan Barreda Delgado, chairman of the Peruvian Nuclear Energy Institute (IPEN) has stated that the institute will call on foreign capital to invest in prospecting for uranium in favorable areas located at the Selva's edge, in the departments of Junin and Pasco. The tender will be carried out as soon as the Energy and Mines Ministry approves the draft contract and annexes and conditions that the IPEN has drafted under the uranium law. [Excerpt] [PY141955 Lima EXPRESO in Spanish 8 Dec 81 p 14]

PUENTE PIEDRA NUCLEAR PLANT--Gen Juan Barreda Delgado, chairman of the Peruvian Nuclear Energy Institute (IPEN), said yesterday that the Puente Piedra Nuclear Plant will be ready in 1983, and it will produce radioisotopes to be used in medicine, mining and agriculture. He pointed out that up to the present date the overall budget of the plant amounts to $80 million (about 40 billion soles). Part of this amount is being financed with a loan by the Argentine Government, but the total figure will slightly increase by the time the work is finished. [Excerpt] [PY141946 Lima EXPRESO in Spanish 8 Dec 81 p 14]

CSO: 5100/2056

BRIEFS

URANIUM DISCOVERY--The Iranian organization of nuclear energy has announced the discovery of huge uranium deposits in four places in Iran. Director of the organization Reza Amrollah has noted that in light of this discovery, the Iranian organization of nuclear energy has begun desalinizing water in some parts of Iran. He has stated that the organization will follow up with a detailed program of nuclear research and scientific study. [Tehran International Service in Arabic 2000 GMT 19 Dec 81 GF]

CSO: 5100/2062

NUCLEAR ENERGY CHIEF FORESEES NEW POWER PLANTS

Tel Aviv MA'ARIV in Hebrew 23 Oct 81 p 27

[Article by Avraham Peleg: "Five Power Plants by the Year 2000"]

[Text] The Israeli Atomic Energy Commission is preparing the goundwork for a decision on the establishment of power plants in Israel. The director of the Commission, Mr Uzi Eilam, reported that in contrast to previous plans--which would have located the first situation on the coast--the first stations are now slated to be situated inland. The long-range plan to build a plant in the Nitzanim area, however, has not been abandoned.

Although two nuclear research plants have been operating in Israel for a relatively long time (in Nahal Shorek and Dimona) the first nuclear electric power station is still a long way off. One reason for the delay had been the policy adopted by President Carter during the last few years.

"President Reagan has not only announced that he will encourage the construction of new nuclear power stations," says Mr Eilam, "he has also said that he will encourage the construction of more advanced reactors of the "fast breeder" type. The United States intends to re-establish its position as a leading exporter of nuclear technology. We are now, therefore, in a waiting situation, filled with greater optimism than in the past..."

Five plants by the year 2000

In his opinion, it is up to Israel to build between three and five nuclear power plants by the end of the century. A temporary schedule for construction and operation will be determined based on theoretical decisions. "Construction time for the plant will be around 10 years," explains Mr Eilam. "If we don't take the first steps now, we won't have a plant by the beginning of the 1990's"

[Question] During the last few years, the opinion has been expressed that Israel should go ahead on its own and build nuclear power plants if the Americans and Europeans refuse to sell us nuclear technology. Does Israel have the capability to build a nuclear reactor?

[Answer] I don't know a single nuclear expert who would claim that Israel can build a'nuclear reactor on its own. The Atomic Energy Commission has investigated the at length. The Horev Commission also looked into the matter and concluded that Israel cannot build a reactor with all its components. In my opinion, Israel can produce a significant portion of the components, but the construction of the whole unit is technologically impossible and economically unfeasible.

We should not forget the basic facts. A nuclear power station has a nuclear care which produces the energy. From that point on, the technology is conventional. The steam (produced by nuclear energy), turbines, generators, control systems and the structure are all part of technology already existing in conventional power stations. To build a 1000 megawatt nuclear plant today costs 1.5 billion dollars. Only an estimated 10 percent of that investment is in nuclear technology. The rest is technology used in conventional power plants. If Israel has not yet built an Israeli-made reactor, this is an indication that it is not economically worthwhile, a decisive factor with respect to nuclear stations.

While Israeli wants to start using nuclear energy in the near future for peaceful purposes, details regarding the military potential of the Iraqi plant and the reasons for blowing it up have been revealed--first by the Israeli Atomic Energy Commission. The details were presented in Mr Eilam's speech to the International Atomic Energy Agency [IAEA] at a conference held in Vienna.

Mr Eilam emphasized that "Iraq had acquired nuclear apparatus and expertise, and had put together all the components required to develop nuclear weapons."

Iraq had also acquired a plant for testing nuclear material (MTR), an important component for any nuclear device. Further, the OSIRAC plant was suitable for producing significant quantities of plutonium. Similar plants exist only in a number of highly industrialized countries. "There is no doubt that Iraq had no intention of building power plants," claimed the director of Israel's Atomic Energy Commission.

Before the inspector arrives...

Mr Eilam further noted that a fuel production facility built by Iraq was capable of producing large amounts of fuel for the power plants. Iraq has no need for such quantities in the near future unless it intends to use uranium in order to produce plutonium. Iraq has acquired the means to separate plutonium from uranium at high radiation levels.

In the continuation of his statements Mr Eilam took time out to discuss the possibility of regulating Iraq's nuclear power. In his opinion. the preference for the experimental OSIRAC plant was proof of a plan to produce nuclear weapons without running the risk of being discovered. According to the Agency's regulations, there is no need to provide the IAEA's inspector with reports on experiments conducted in this type of plant, other than the quantity of nuclear fuel consumed. In a large experimental plant such as the OSIRAC natural uranium could be used and then the activity could be covered up by getting rid of the uranium before the inspector arrives.

Representatives of the Israeli Atomic Energy Commission have participated in 24 general sessions of the IAEA but had never encountered as much hostility and criticism as during the 25th conference. The chairman, Dr Siegvard Ecklund of Sweden (whose term ended with this session) considered the Israeli action to be an attack on him personally and on the organization. Mr David Ronen, a member of the delegation, pointed out that representatives of 91 countries attended this conference. Since each country has an equal vote, it was feared that an alliance of Arab nations, Third World nations and the Communist bloc would be able to pass severe measures against Israel.

In the end, two decisions against Israel were passed: to censure Israel for having bombed the Iraqi plant and demand that all nuclear facilities in Israel be placed under the Agency's control; and to discontinue technical nuclear aid to Israel. While the cessation of aid is a sanction that has already gone into effect (by the way, this is the first time the UN has enacted a sanction against Israel), the demand for control is accompanied by the possibility of suspension from membership in the Agency--if the terms are not met. The question is whether, from now on, the threat of suspension won't hang over our heads like Damocle's sword?

"I don't think of it as Damocle's sword hanging over our head," said Mr Eilam. There is no precedent in the IAEA for suspension of a member. Further, the Agency's regulations do not include a clause on this subject. Even the Iraqis, who during the 25th conference demanded our exclusion from the Agency, understood that his was a step that would not be taken and agreed to the watered down decision.

The deputy director of the Israeli Atomic Energy Commission, David Peleg, noted that the members of the Agency were convinced--from a realistic point of view--that there is no better system today for international control than a pact against the spread of nuclear weapons. It is against this background that the angry response to Israel's bombing of the Iraqi plant must be seen. To many, it represented a lack of faith in the pact and the Agency's regulatory capabilities.

Control by the IAEA will entail between four and five visits annually to Israel's nuclear plants in Nahal Shorek and at the Technion. Mr Eilam noted that Israel would be sent prior notification of each visit. Notification would include the names of all the inspectors, who are professionals in the nuclear field. There was already an incident where Israel refused to allow the visit of the Japanese inspector in response to the Japanese having refused the visit of the Israeli inspector acting for the Agency. At this time there is only one Israeli inspector visiting various countries.

Mr Eilam noted that the significance of the decision to discontinue technical nuclear aid to Israel is more political than procedural and will influence Israel's international position. Countries such as India and Argentina have refused technical aid. Israel can write off the negative impact of this decision because of its direct bilateral relations with several nations in the field of nuclear energy. "As long as we have scientific liaisons with friendly nations and as long as we have good people in the field, I don't believe we'll be hurt by the decision."

9811
CSO: 5100/4705

SHAGARI: GOING NUCLEAR TO BE FOR PEACEFUL PURPOSES

Kaduna NEW NIGERIAN in English 8 Oct 81 p 32

[Article by Biodun Ajoni]

[Text]

PRESIDENT Shehu Shagari has reaffirmed Nigeria's intention to go nuclear but says it would be for peaceful purposes and not warfare.

The president made this clear while addressing Nigerian students in Melbourne, Australia on Monday.

He said since uranium had been discovered in the country, the nation had to take advantage of it not to export it all.

Nonetheless, he said, the government would not neglect researches into solar and other forms of energy resources. Rather, he said, the government would seek to exploit all the country's resources.

He pointed out that the country had much more resources than Japan, for instance, had some years ago, adding that if Japan was able to transform itself into a highly industrialised country, there was no reason why Nigeria should be unable to achieve the same feat.

He stressed that for this t possible, however, every Nigerian must be prepared to work hard.

He advised the students to make their studies their primary concern in Australia and to hurry back home after graduation to join in the task of nation-building.

He said the government was aware of their problems especially that of finance and was doing everything possible to solve them. For the sake of private students, he went on, the students loans board was being reorganised to minimise the delay in processing applications for loans and the awards so that the sufferings of such students abroad could be reduced.

The government, in addition, was also making more funds available to the board, the president said.

dent said, while the recovery of outstanding loans would be intensified.

He pointed out that the students loans scheme was a revolving one and if outstanding payments were not recovered, others would not be able to benefit from the scheme.

Also on Tuesday, the Nigeirian Ambassador to Australia, Mr. Olu Sanu, formally presented his credentials to the Governor-General of Canberra, the capital of Australia.

CSO: 5100/5609

SIERRA LEONE

SOUTH AFRICAN DECISION TO PRODUCE ENRICHED PLUTONIUM HIT

Freetown DAILY MAIL in English 28 Nov 81 pp 1, 4

[Editorial]

[Text] THE South African government has ordered its scientists to go ahead with work to produce enriched Plutonium and has consequently re-fuelled fears of South Africa,s secret development of a nuclear bomb.

ONLY the United States, the Soviet Union, Great Britain, West Germany and France have enriched Plutonium production centres.

THE South African nuclear Potential has been the object of scientific and Political discussion for more than a decade and the resultant dangerous threat to black Africa has been an underlying current since.

THERE is absolutely no doubt in many thinking African circles that South Africa has already developed a nuclear bomb which it has stored as the ultimate weapon against black Africa.

THE international furore that was caused over a year ago when South Africa was believed to have tested one such bomb was not completely quietened when Western experts later stated that the flash of light espied was not a bomb explosion.

CONSIDERING South Africa,s close ties and influence in many Western corridors of power it is not surprising that there were third-world fears of a cover-up.

WHATEVER it all was, the present call-up by Pretoria of its scientists does not need ingenious deciphering for the message to be got.

THE South Africans are out on the nuclear run and the mission has a two-worded name: 'STOP AFRICA,.

CSO: 5100/5610

BRIEFS

ENRICHED URANIUM TO FRANCE--South Africa has supplied enriched uranium to France where it will be turned into fuel which will be used in the first French-built nuclear power station in South Africa. French officials in Paris say the fuel will be used to start up the first South Africa nuclear power station at Koeberg near Cape Town in 12 months. They say the plant has undergone successful circuit pressure tests and that it should go into industrial production in December 1982. The firm Framatome which heads the French consortium building the power station says it is none of their concern how South Africa obtained the uranium, but an official said the French Government had given Framatome permission to process it, which meant that the uranium had been bought through a regular trading company and was covered by the International Atomic Agency. [Text] [LD181842 Johannesburg International Service in English 1500 GMT 18 Dec 81]

CSO: 5100/2062

DANISH SDP LEADER: STOP SWEDISH PLANT

Stockholm DAGENS NYHETER in Swedish 27 Nov 81 p 5

[Text] "Stop the Barseback plant which is located alarmingly close to Copenhagen." This is demanded by Preben Steen Nielsen, leader of the Danish social democratic party's committee for energy policies, on election advertisement in the AMAGER in Copenhagen.

There is a picture of Steen Nielsen on the poster, side by side with Prime Minister Anker Jorgensen.

"After the election we are going to get in contact with the Swedes to ask them to stop the Swedish nuclear power plant of Barseback. That is a promise that we will keep if we require it," says Steen Nielsen.

A large part of the population of Copenhagen wants Barseback to be stopped. An accident at the nuclear power plant is feared. Many people have demonstrated to demand that Barseback be shut down. Recently 10,000 participants were gathered for such a demonstration.

But Anker Jorgensen declares in a statement that he does not know the text of the advertisement of the AMAGER paper in detail and he is of the opinion that the Danish social democrats are collaborating well with the Swedish authorities--even in the Barseback case.

In a statement for the Swedish Central News Agency Preben Nielsen said on Thursday that Denmark will be able to deliver natural gas to Sweden in order to replace the electric power lost with Barseback.

9662
CSO: 5100/2039

INSPECTION AGENCY SAYS NUCLEAR PLANT INADEQUATELY TESTED

Stockholm DAGENS NYHETER in Swedish 27 Nov 81 p 5

[Article by Jarl Ingvar Andersson]

[Text] The nuclear power reactor Ringhals 3 has become a prototype plant that has not been sufficiently tested.

There is a risk that new elementary defects will be revealed when the reactor is put into operation again after reconstruction.

The picture of the broken down Ringhals 3 is now beginning to emerge at SKI [the National Nuclear Power Inspection Agency].

"The more Ringhals 3 is studied the more obvious it becomes that there are several components that have never been tested and approved by the American nuclear power authorities, NRC," says the chief of the nuclear power inspection agency, Lars Nordstrom.

"I keep having a headache out of fear that some new unpleasant thing that we are not yet aware of is going to appear."

Ringhals 3 is a so-called compressed-water reactor manufactured by the American Westinghouse. The construction of the reactor is based on the same principle as all the Westinghouse reactors. But it has a little specific feature--the steam generator has a water intake in its lower part, as opposed to earlier reactors that have this water intake higher up. Ringhals 3 shares this specific feature with 10 to 15 other reactors in the world--among others Ringhals 4, the American McGuire and the Spanish Almeras as well as a reactor in Brazil.

But only two of these 10 to 15 different reactors have so far been brought into operation. These two are Ringhals 3 and Almeras. Leakages of the steam turbines have occurred in both reactors.

"The intention was to have the reactor in Brazil in operation several years ago and that was where Westinghouse was going to test the new constructions of the reactor," the SKI representatives explain. "But due to delays the reactor is not yet in operation."

Ringhals 3 became instead the first "new" reactor in operation.

"We are of the opinion that the American nuclear power authorities should have tested out the reconstructions better before the reactor was approved," says Lars Nordstrom of the National Nuclear Power Inspection Agency.

"If Asea-Atom sells a reactor abroad, we who work at SKI assume the responsibility to check out and examine such a reactor, including its smallest details."

"It is not possible either to eliminate the fact that Vattenfall should have performed a better inspection."

Ringhals 3 has now been at a standstill with its leaking steam generators since the end of October. Nobody wants to try to predict when it will be back in operation again. Maybe this will not be until half a year from now.

Yesterday the board of the National Nuclear Power Inspection Agency was informed about the plan for the reparation of the reactor that has been developed by Frigyes Reisch and Lars Hogberg of SKI.

Experiments in the United States

SKI will in the near future perform some model experiments among others at the American McGuire reactor, which is identical with Ringhals 3, but which is not yet in operation. The advantage of the experiments at McGuire is that the environment is not radioactive.

"It will take at least 6 weeks before the experiments in the United States are completed," says Frigyes Reisch. Before that we do not even want to discuss when Ringhals 3 is going to be able to be in operation again.

Vattenfall has claimed for a long time that it is possible to put the reactor back into operation shortly if it is run at a low speed and if the tubes that leak or are damaged are plugged.

Such a solution is faced with reluctance at SKI. Vattenfall has not presented an application for such an undertaking.

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REACTOR HALTED WHEN FAULT FOUND IN TANK

Stockholm DAGENS NYHETER in Swedish 27 Nov 81 p 5

[Article by Jarl Ingvar Andersson]

[Text] SKI [the Nuclear Power Inspection Agency] wants to stop the operation of the atomic reactor R 2 of Studsvik beginning 1 January. The reason is that the reactor tank is threatening to crack. The radioactive radiation has made the tank as fragile as porcelain, according to SKI.

The Studsvik Energy Technology, the owner of the reactor, is, however, of the opinion that the operation can continue longer and it has applied to exempt the operation for the next 6 month period.

It is now going to be up to the government to determine whether or not the reactor should be closed down.

"We believe that it is necessary to close the reactor in order to avoid a serious accident," says the chief of the Nuclear Power Inspection Agency, Lars Nordstrom.

The agency states now that the strength of the tank is so much reduced that a sudden increase in pressure would result in it cracking.

Risky Experiments Have To Be Reported

The SKI has also declared that the reactor has to be operated very carefully until the end of the year and that each experiment that might threaten safety has to be reported to the Nuclear Power Inspection Agency.

"Some pressure increases that have previously taken place in the reactor have been so powerful that they, if repeated, would break up the tank," according to Lars Nordstrom.

If the tank would crack open the Studsvik staff would be injured by radiation, but the Nuclear Power Inspection Agency does not believe that an accident would have any serious consequences outside the plant.

"Some inert gases might spread within a range of a few kilometers," says Lars Nordstrom.

Reactor R 2, which is a research reactor, is significantly smaller than the commercial reactors that exist in Sweden. R 2 produces 10 to 20 times less energy than the commercial reactors.

If the tank of R 2 cracks the radioactive substances would get into the water basin that surrounds the reactor.

The core would probably also be shifted, which would make it impossible to stop the nuclear fission process. This would lead to the melting of the core.

But the Nuclear Power Inspection Agency is, however, of the opinion that the reactor is sufficiently protected to keep the damages within the building.

The weakening of reactor tanks has for a long time been a hot debate matter regarding nuclear power safety.

The Nuclear Power Inspection Agency is, however, of the opinion that it is not possible to draw any parallels from the Studsvik reactor to commercial reactors. The Studsvik reactor is made out of aluminum, while other reactors are made out of steel.

The Weakening of the Tank a Surprise

It is, however, at the same time stated that the weakening of the tank has been a surprise. The SKI stated as late as in 1980 in a report that there were no technical hindrances for continuing R 2 operation for another 10 to 15 years.

"The durability of the tank has proved to be much poorer than expected," says SKI chief Lars Nordstrom. "The whole thing comes as a great surprise."

The research reactor has been in operation since 1960. It is used for contract research for Swedish and foreign nuclear power companies. Some basic research is also performed at the reactor.

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SWEDEN

INSPECTOR CRITICIZES HANDLING OF 'ONE OF MOST SERIOUS' ACCIDENTS

Stockholm DAGENS NYHETER in Swedish 24 Nov 81 p 11

[Article by Rolf Akerberg]

[Text] From a design standpoint, the accident at the Ringhals 3 nuclear power plant on 21 October was the most serious accident yet suffered by the Swedish nuclear power industry. This was the conclusion of reactor inspector Frigyes Reisch of the National Nuclear Power Inspection Board. A Westinghouse reactor in Spain and one in the United States have been shut down as a result of this accident.

The reactor in the United States was not damaged, although the reactor in Spain was.

Frigyes Reisch mildly criticized the personnel at Ringhals and said:

"There was a bit too much discussion before the reactor was shut down, but overall the personnel reacted in a satisfactory manner."

The leakage in one of the three steam generators at Ringhals was not great enough to shut down the plant automatically.

"It was above the permissible limit, however," Ringhals head Evert Eriksson stated in a review of the situation on the Monday of the accident at the Municipal Safety Board in Varberg.

Ringhals 3 has three generators with 4,000 hot water pipes each in its primary system.

Leakage

On 21 October leakage occurred in one of these pipes and radioactive water flowed out.

Safety regulations permit 1.88 cubic meters of such water to leak in a 24-hour period, but at Ringhals 3 there was a maximum leakage of 2 cubic meters per hour.

When the first alarm went off, however, the amount of radioactive water flowing out was below the permissible limit. The leakage later increased during the shutdown.

"When as much leakage as 1.88 cubic meters per day is indicated, the reactor should be shut down," Frigyes Reisch explained. "The personnel should have realized that the leakage would increase."

That one of the 12,000 pipes could be damaged in this way is a problem that must be accepted, according to Ringhals chief Evert Eriksson. The problem would have been more serious if a pipe had burst. The personnel is trained for such occurrences.

Damage was found in several hundred other pipes as well, however, which also could have led to leakage. It is assumed that the damage arose from vibrations caused by the high water pressure.

The damage was found in the outermost pipes, where the velocity of the inflowing water is greatest. So far, no damage has been found in pipes located farther in. Each pipe has a diameter of 19 mm and the pipe thickness is 1.09 mm.

The Nuclear Power Inspection Board will now ask the reactor manufacturer, Westinghouse, why it changed the feedwater system from the top to the bottom (as at Ringhals 2) and why it was later changed back to the top.

The damaged unit in the Spanish reactor has the same feedwater system as Ringhals 2, but the reactor that has been shut down in the United States has the other system--and no damage was found there.

Ringhals chief Evert Eriksson said he had no idea how long Ringhals 2 must be shut down. According to him, replacing all 12,000 pipes would be a "major undertaking."

Goran Mandeus, information director at the Nuclear Power Inspection Board (SKI) said that it would be possible to plug the damaged tubes--if, in fact, this would meet the safety requirements of SKI.

Evert Eriksson, head of Ringhals, stated that Ringhals 2 could operate at a lower power, but that this would be a "short-sighted solution."

The State Power Board will try to persuade Westinghouse to pay for the damage.

Evert Eriksson is unsure whether this is possible, since the warranty period has expired.

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EDITORIAL URGES QUICKER ACTION WHEN REACTORS MALFUNCTION

Stockholm DAGENS NYHETER in Swedish 27 Nov 81 p 2

[Editorial by Olle Alsen]

[Text] The R-2 research reactor at Studsvik has become so brittle from neutron irradiation that it is as fragile as "delicate china" and it must be shut down by the end of the year to avoid a serious accident during possible pressure increases. This was the conclusion of the National Nuclear Power Inspection Board, which under its new chief Lars Nordstrom is beginning to speak of nuclear accidents with the seriousness this topic deserves.

If a reactor vessel bursts, because it has been bombed or because an undetected leak has reached the critical size at which it is impossible to be stopped, events will occur that stagger the imagination. A ruptured vessel is not "the worst imaginable accident," according to various risk studies and design regulations--it is much worse than that.

If the vessel is ruptured suddenly, not preceded by a core meltdown and steam explosion, there is no barrier to the enormous and immediate emission of radioactivity, with no warning or evacuation time, and no way to stop subsequent core meltdown, which would make the unthinkable even worse.

Since there is no defense against a vessel rupture in nuclear reactors, there has been a natural tendency in the business and among regulatory authorities to view a rupture in the vessel as unthinkable. After all, there is no need to protect oneself from that which cannot occur. If it is impossible to guard oneself against something, that event "cannot" occur, but nothing definite is known about this.

It should not be permissible to take such risks in a civilized society, since the consequences of a ruptured vessel are unbearable if, contrary to our beliefs and hopes, such an event should occur. Shut down nuclear power more rapidly!

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BRIEFS

NEW FILTER FOR BARSEBACK--Design work is now beginning on a filter unit that will reduce the risk of radioactive emissions from the Barseback nuclear power plant. It is expected that the unit will cost just over 100 million kronor at today's prices and that it will be completed in 1986, in accordance with a parliamentary resolution. This was reported by Sydkraft project leader Ake Persson in connection with a request by the Nuclear Power Inspection Board (SKI) for an additional 2 million kronor from the government for research on filter chambers. This research costs 20 million kronor and is being paid for by SKI, the State Power Board, Sydkraft, and the Oskarshamn power group. The idea is to connect the two reactor containments at Barseback by way of pipes to the filter unit. This unit consists of two sections, a 40 m high and 25 m wide concrete silo filled with rock and a water pool. Radioactive steam and water would be purified in the rock filter and the water pool in case of a core meltdown in one of the two reactors at Barseback. [Text] [Stockholm DAGENS NYHETER in Swedish 25 Nov 81 p 12] 9336

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